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ABSTRACT

This report presents study results on the condition of the nation's school infrastructure and provides recommendations for creating a system of comprehensive strategic planning that will support the creation of high quality learning environments for all children. The report highlights the efforts of a number of schools, districts, states, and private corporations that are creating innovative ways to produce high quality school infrastructure. Chapters examine each of the following recommendations made by the National Association of State Boards of Education (NASBE) Study Group: (1) planning and implementing building designs that help achieve the district's educational plans; (2) creating mechanisms to help districts provide adequate technology and technological support for students and compel educators and local boards to integrate technology into their educational plan; (3) ensuring that teachers and support staff have access to state-of-the-art professional space, technology, and technical assistance in attaining state and district education goals and implementing reform; and (4) encouraging state policymakers and local districts to work together to create funding mechanisms that ensure all students have access to genuinely good schools. (Contains 31 references.) (GR)

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Building Our Future:

Making School Facilities Ready for the 21st Century

Report of the NASBE Study Group on School Infrastructure

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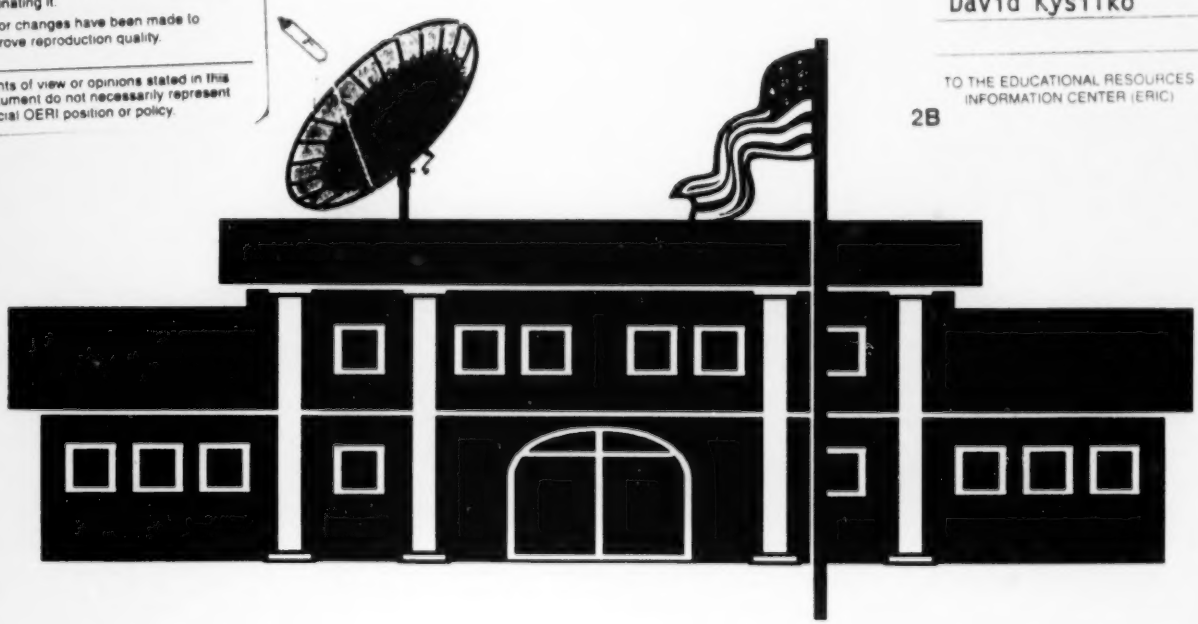

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National Association of State Boards of Education
October 1996

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I. Preface

The NASBE Study Group on School Infrastructure, comprised of eleven state board of education members, was appointed in the fall of 1995 for a one-year study of the condition of school infrastructure, which in this report includes school facilities and capital assets such as wiring and computers. This report represents the results of the Study Group's work and contains members' major recommendations to state board of education members, practitioners, parents and other federal, state, and local policymakers.

The work of this study group is based upon the premise that school infrastructure conditions affect student learning. Consequently, while school infrastructure planning and improvement is often considered separately from educational planning and reform, it is best undertaken as one component of a school, district, and state strategic plan. Although states are in a particularly good position to direct and disseminate infrastructure planning and evaluation activities, the study group acknowledges that decisions concerning school infrastructure have been generally locally driven without assistance from the state. This group is not suggesting that the rights of local districts to define their own infrastructure needs be rescinded. However, the group feels that each tier of policymaking has a unique role to play in creating a comprehensive policy and planning environment that will produce the finest in school facilities that enhance the educational environment and facilitate current and envisioned programs.

This report highlights the efforts of a number of schools, districts, states and private corporations that are creating innovative ways to produce high quality school infrastructure. Also, this report makes recommendations for creating a system of comprehensive strategic planning that will support the creation of high quality learning environments for all children.

In arriving at the conclusions presented here, study group members sought the perspectives of a wide variety of constituents, including government and university-based researchers, architects, construction management workers and state policymakers. We are grateful for their advice and expertise. In addition, members of the NASBE Study Group on School Infrastructure would particularly like to thank Johnson Controls, Incorporated, and Barton Malow Company for their generous support for this important project. Johnson Controls kindly supported the Study Group's meetings, advised the Study Group on several technical matters and provided editorial advice. Barton Malow Company generously supported the publication of the Study Group Report and also provided technical and editorial advice.

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II. Executive Summary

Each day, millions of students are warehoused in cold, damp, unsafe school buildings. Considering the conditions in which we expect some children to spend their day, it is little wonder they have limited confidence in their communities' or the general public's promises to provide for their needs as they grow. Improving education requires adults from all walks of life to cultivate children's confidence by ensuring they attend safe, healthy schools that are conducive to learning. The challenge laid before board members, educational professionals, legislators and the public at large is to acknowledge that the inadequate, if not abhorrent, conditions in many school facilities across the nation have a direct and lasting effect on the education students receive.

The NASBE School Infrastructure Study Group contends that it is imperative that states begin to provide guidance for, and require from districts, comprehensive strategic planning for schools that includes an agenda for school infrastructure coupled with the educational program. While national reports from the General Accounting Office and other groups have documented the condition of school facilities across the country, this Study Group contends that the level of conversation surrounding school infrastructure must extend beyond a catalogue of decay, asbestos and accessibility issues. It must also include consideration of the value judgements and priorities that are implicit in the process of reconstruction.These value judgements create state policy with respect to schools.

The Study Group calls for comprehensive state participation in this traditionally local-level process for several reasons. First, infrastructure components that are evaluated on a state level can improve both state and district planning. Second, state-wide direction binds district planning to state minimum standards. Also, state involvement in infrastructure planning and evaluation is more likely to ensure that evaluation findings are compatible across the state and lead to equity among individual districts, both in funding and planning capability. Finally, state education departments that collect and analyze data concerning school infrastructure have valuable data to share that can influence state and federal spending priorities and research agendas.

The complex nature of school infrastructure issues demands that state policymakers consider multiple actions to meet school needs. Data indicates that states tend not to look holistically at school infrastructure and educational goals, planning and evaluation. But **the gravity of school infrastructure decay requires comprehensive action on the part of state boards and legislatures. This action must combine infrastructure policy issues with other aspects of state education planning, accreditation, evaluation and reform.**

Envisioning infrastructure planning as one component of whole-school and whole-system strategic planning has implications for who makes decisions about infrastructure. States need to be acutely cognizant not only of the benefits of a comprehensive state role in strategic planning but also of the limitations implied by such a system. Local schools remain, first and foremost, locally administered. Defining and operationalizing school goals, philosophies, teaching and learning methods and infrastructure needs require active engagement of the community. States should constantly monitor that their requirements support and encourage a community process of informed strategic planning that includes not only parents and educational staff, but also local business leaders, civic leaders, students, and other community representatives.

Conceived in this way, states need to model good strategic planning within their authority

and, within their strategic plan, devise mechanisms to facilitate good local planning for high quality education. In order to model and facilitate strategic planning for school infrastructure, the NASBE School Infrastructure Study Group recommends the following:

1. State Boards should create mechanisms to ensure that districts have the tools and information they need to plan and implement building designs that help achieve their educational strategic plan.

State boards are instrumental in ensuring that every district has the necessary tools to provide quality education to all students. Board policies that place tools and information at districts' disposal can have a tremendous impact on the ability of districts to plan the construction of buildings that help achieve their strategic plan.

2. State Boards should create mechanisms to help districts provide adequate technology and technological support for students and compel educators and local boards to integrate technology into their educational plan.

State board involvement in public utilities agreements and technology purchases and utilization can make technology more affordable and more accessible to all students.

3. State Boards should ensure that teachers and support staff have access to state-of-the-art professional space, technology and technical assistance to assist them in attaining state and district education goals and in implementing reform.

A high priority must be placed on ensuring that teachers have the facilities and training they need in order to do their job well. These facilities may include conference and office space and state-of-the-art technology, and professional development should be available to help teachers integrate technology across the curriculum.

4. State policymakers and local districts must work together to create funding mechanisms to ensure that all students have access to genuinely good schools. These mechanisms must work as part of the strategic plan, to ensure that schools are built everywhere that have the space and tools necessary to achieve educational goals.

A key component of providing good school infrastructure is finding ways to fund its creation. High quality school facilities may be expensive, but state boards have an important role in facilitating innovative fundraising and equitable distribution of funds for school infrastructure so that all children can learn in high quality school facilities.

Quality learning environments not only impact student learning, but they convey strong messages to teachers of the value of their work and give students strong messages of the value society places upon their futures. The NASBE School Infrastructure Study Group calls for immediate local, state and national dialogue to decide the content of these messages and to build a strategic, interwoven support system on which to "build our future."

III. SCHOOL INFRASTRUCTURE AS A MATTER OF NATIONAL CONCERN

Each year, at least 43 million children and youth spend six or more hours a day in one of our nation's 80,000 elementary and secondary schools. Add to these over 2.5 million teachers, a myriad of other instructional and support staff, and adults who attend continuing education at their local public school, and the result is that schools serve more individuals and families than any other single public service provider.

But the age and condition of the nation's public school infrastructure are in a state of national crisis. Countless media stories have emerged of school buildings on the brink of collapse and youth attending classes in damp, dreary and often unsafe conditions.

- In one elementary school in Montgomery County, Alabama, water leakage caused a ceiling to collapse, just 40 minutes after students had been released for the day.

- In a Washington, DC middle school, one wing was condemned because water leakage from the school's 60-year-old boiler heating system destroyed walls. Leaking steam from the boiler also caused lead paint to chip and peel.

- A Chicago, Illinois, high school has had to chain an exit door for the last three years because steps outside the door are decayed and broken. In this same school, plumbing problems in the science labs meant that science classes could not do experiments.

- In Pomona, California, the student population has increased 37 percent in the last ten years. As a result, many classes are held in portable bungalows that are dark, have few electrical outlets, are often termite infested and have no air conditioning.

- Over 1,000 schools in New York City were unable to open on time in one year because of noncompliance with asbestos mandates.

Statistics also present a daunting nation-wide picture of school decay. A series of General Accounting Office (GAO) reports on school facilities estimates that the nation's public schools may require $112 billion for repairs and renovations in order to be brought up to good overall condition. Fourteen million students attend schools that need extensive repair or replacement of one or more buildings, and almost 60 percent of all schools report having at least one major building feature (such as heating or plumbing) in disrepair.

Another seminal report on school facilities, the American Association of School Administrators' (AASA) publication *Schoolhouse in the Red*, asserts that three-fourths of all public schools in the United States have outlived their predicted life. Thirty-one percent of all schools in use were built prior to World War II, and 43 percent were built during the 1950s and 60s, when cheap, inefficient construction was a common response to the growing school population. In general, these buildings were supposed to be short-term solutions to the baby boom and were not intended to last longer than 30 years.

More recently, numerous districts have purchased "temporary" portable classrooms, a quick and efficient way to add rapidly needed classroom space. Never built or intended for long-term use, portable classrooms have often become fixed, permanent additions to school campuses. Even many of these facilities are in need of immediate replacement or repair.

The picture painted by all of these reports is one of a national school infrastructure urgently in

need of attention, of ill-equipped and often dangerous facilities that house youth, our nation's greatest resource, for at least one-half of every year.

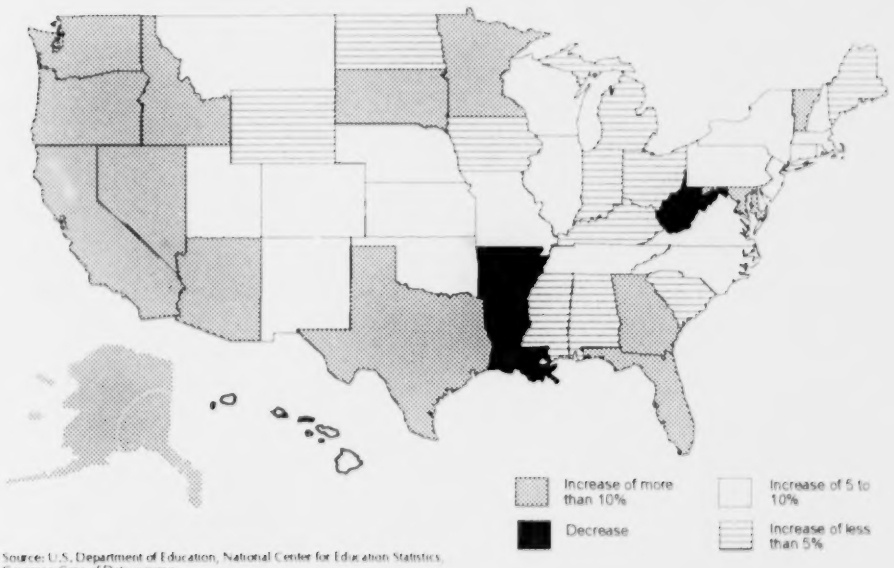
As if the physical condition of school buildings were not enough to sound an alarm, the crisis brought on by aging and crumbling schools is being exacerbated by several factors, including: 1) recent trends of population growth and decline; 2) rapid changes in technological needs and curriculum expectations in schools; 3) renewed concerns of equity and accessibility for individuals with disabilities; 4) mandates concerning safety and health; and 5) longstanding deferred maintenance.

Population Trends

Recent national reports indicate that significant projected student population growth in some areas and decline in others promise to make school facilities an increasingly visible and urgent issue. For example, increasing enrollments in states such as California, Florida, Nevada and Texas create short-term and long-term needs for more space. In California alone the number of students enrolled in public elementary and secondary schools grew 29 percent between 1984 and 1994, making the need for space particularly acute. Demographic predictions are that over 2 million additional students will enter the California Public Schools between 1990 and the end of the decade. In New York City, estimates suggest the student population will grow by 25,000 each year through the year 2000 (Fernandez & Timpane, 1995; Heuisi, 1995).

Alternatively, decreasing populations of school-age children or shrinking populations in general have serious implications for local and state school systems as well. Declines in population often mean a decreased tax base for funding schools. In West Virginia, the number of students enrolled in public elementary and secondary schools decreased 15 percent from 1984 to 1994, requiring the state to consider approaches to funding the state school system that are very different than those of California.

Percentage Change in Public Elementary and Secondary School Enrollment, by State: Fall 1989 to Fall 1994



Source: U.S. Department of Education, National Center for Education Statistics, Common Core of Data surveys.

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Changes in Curriculum and Technology

Changes in the technological needs and curricular expectations of schools impose new challenges on school facilities. Schools entering the 21st Century must be equipped to support necessary technological equipment and must have classroom space that is conducive to new methods of teaching and learning. For example, the physical layout of classrooms, the size and layout of the library/media center, the ease with which students access technology and the flexibility of schools to accommodate groups of different sizes all impact the implementation of other educational reforms. Schools are not just a roof over students' heads, but a tool that can contribute to, detract from, define and delimit learning.

The federal government is committed to having every classroom in the country connected to the National Information Infrastructure by 2000. Yet 55 percent of schools report not having funds allocated for telecommunications, which creates a major barrier to acquiring or using advanced telecommunications in school. (NCES, 1996). Acknowledging the lack of funding for technology in schools, the federal government, in the 1996 Telecommunications Act, created the National Education Technology Funding Corporation to stimulate private sector investment in infrastructure for education technology (Dow, Lohnes and Albertson, 1996). The undertaking of this Corporation is immense; connecting every classroom with a digital phone line to the National Information Infrastructure by 2005 would require an investment of between 4 and 5 percent of the total money spent on public elementary and secondary education over the next nine years. To put this level of funding in perspective, the current expenditure on technology is only 1.3 percent of the total elementary and secondary education budget (The Children's Partnership, 1995).

Even if classrooms were wired for on-line services, putting existing terminals on line does not solve the problem; 80 percent of all computers in schools in 1993 were obsolete, unable to use current software, lacking memory or devoid of graphics capabilities (Information Infrastructure Task Force Committee on Applications and Technology, 1996, p. 65). Bringing classrooms on-line will require a substantial infusion of new or upgraded equipment in addition to upgrading electrical service to schools.

As technology is being integrated into classrooms, teacher training becomes an imperative. In general, teachers are not well trained to use computers (NSBA, 1989), and some studies conclude that it takes a teacher five to seven years to become comfortable enough with a technological learning system to integrate it into their classroom and effectively guide students. Staff need to have sufficient equipment and comprehensive training available to integrate technology into teaching and learning.

Finally, technology in schools has yet to be implemented in an equitable manner. For example, a GAO Report found that inner-city schools, schools with a student population over 50 percent non-white, or schools with a student

From *Learning By Design: A School Leader's Guide to Architectural Services*
(National School Boards Association)

The days when you had 32 kids locked in a box — with Miss Daisy and a textbook as the only forms of communication — are over...Now, a group of kids collaborates. That leads to animated conversations, so you need carpeting, acoustical ceilings, and sound absorbing work stations. Old floors and old ceilings won't do.

Nor does the traditional chair-and-desk unit provide the flexibility needed to function in modern classrooms. Kathy Day of the KBD Planning Group Inc., in Bloomington, Indiana, calls the units "dinosaurs," adding that schools need new work centers to accommodate the new teaching styles.

Court Cases Concerning Local School Facilities and Income Equity

- In 1994, Arizona's school funding system was declared unconstitutional solely due to inequalities in school facilities brought about by disparate local property wealth. The court required the Arizona legislature to devise a remedy for capital funding inequities, and the state began a district level survey of school facility inequalities.

- In Texas, court cases in the 1980s established that inequities in school facilities are as unacceptable as inequities in operating expenditures. It stated: "In Texas, capital expenditures have been made almost solely from local tax dollars and almost solely from borrowing. As a consequence..., vast disparities exist between the districts' ability to make capital expenditures...The disparities in local property wealth mean that the higher taxes in poor districts generate fewer dollars to retire debt." (Edgewood vs. Meno, (362,516) District Court of Travis County, Texas, December, 1993, p. 73). The Texas Legislature was charged with creating a scheme to equalize the funds available to rich and poor districts, in the face of almost $3 billion in capital expenditure backlog and a growing student population.

- In Ohio, like Texas, a court found that taxpayers in areas with lower assessed valuation per pupil were having to tax themselves at higher rates if they wanted to produce the same revenue as other districts to fund capital expenses.

- In the late 1980s, Missouri was required by court order to remedy facility inequities in St. Louis. Of the $377 million in planned capital improvements in the city, Missouri was ordered to pay $95 million, and a local $131 million bond issue was passed.

population over 70 percent poor, were more likely to have insufficient technology elements than other schools (GAO, April 1995, p. 2). The top one-fifth of equipped schools have nine times more computers than the least equipped one-fifth of schools (Times Mirror Center for People and the Press, 1994). These figures underscore the special need for schools to provide equitable experiences with technology to all youth.

Other barriers to implementing and evaluating an effective technology program exist. One survey found that educators and administrators believe several barriers exist that impede the use and acquisition of technology in public schools, including:

- **Lack of funds** allocated specifically for technology (55% of survey respondents)
- Lack of **equipment** or poor equipment (40% of respondents)
- Lack of **teacher awareness** of ways to integrate telecommunication technology into the classroom (28%of respondents) (NCES, 1996).

Equity

Studies illuminating the varying quality of school facilities and the varying ability of rich and poor communities to maintain and update schools highlight the troubling issue of equity. A plethora of court cases have stated, either directly or by implication, that educating children in grossly inequitable facilities is intolerable. Yet gross inequities remain. While some schools have state-of-the-art multimedia and information/technology centers, others barely have enough books to create a library. While some school districts can use capital funds to build swimming pools, planetariums, television studios or hydraulically controlled orchestra pits, others cannot find funds to mend roofs, fix boilers or replace cracked sidewalks.

Since most states do not provide most capital outlay for schools, localized differences

Millions of Students Attend Schools Reporting Insufficient Capability to Support Technology

Technology Element	Percent of Schools with Insufficient Capability	Number of Students Affected (in millions)
Fiber optics cable	86.8	35.4
Phone lines for instructional use	61.2	24.8
Conduits for computer/computer network cables	60.6	24.9
Modems	57.5	23.0
Phone lines for modems	55.5	22.5
Computer networks for instructional use	51.8	20.7
Electrical wiring for computers/communications technology	46.1	19.3
Electrical power for computers/communications technology	34.6	14.5
Laser disk player/VCR	33.5	13.5
Cable TV	31.7	12.2
Computer printers for instructional use	29.3	11.9
Computers for instructional use	25.2	10.3
TVs	15.9	6.8
Schools reporting six or more insufficient technology elements	51.9	21.3

SOURCE: U.S. GAO. 1995. School Facilities: America's Schools Not Designed or Equipped for the 21st Century. p. 12.

in property wealth directly translate into the quality of school buildings. Among states that provide some funds to augment local capital budgets, not all have an equalization provision to distribute more funds to districts with higher need and lower per capita property tax revenue. Even where implemented, equalization provisions in capital fund distribution may not effectively equalize total costs among rich and poor communities (Crampton and Whitney, 1995).

Not only do states usually not fully fund or equalize local capital expenditures, states often restrict school districts' ability to build or renovate buildings by placing limits on local funding. Limitations that states place on local districts include debt limits, which prohibit district debt from exceeding a designated percent of the local taxable property valuation, and voter approval mandates, which may require as much as a 60 percent super-majority for a district to issue bonds to support capital improvements. These limits affect local districts' ability to fund capital projects differently, since districts vary in the value of their local taxable property and school boards vary in their ability to garner a super-majority vote for a bond issue.

Funding inequities for school facilities affect different race and urbanicity categories of communities as well. According to the GAO (June, 1996), most schools with at least one inadequate building feature and requiring the most money to be restored to good condition were in inner cities and were serving a majority of non-white or poor students. The GAO offers, "To put these amounts in perspective, in one urban district, the small amount allocated [for facilities maintenance] was only adequate to paint classrooms every 100 years and replace floor coverings every 50 years" (June, 1996, p. 9).

Schools and districts also vary in the extent they have funded renovations to accommodate students with disabilities. Over half the schools participating in the GAO study (December, 1995) reported making accessibility improvements since 1992, which required a combined total of $1.5 billion in funding. Still, 56 percent of all participating schools estimated that they needed additional funds in the next three years to make necessary accessibility changes, for a combined total of another $5.2 billion.

Making buildings accessible can be extremely costly, and under the current system, the ability of local schools and districts to adhere to

federal accessibility mandates may vary to some extent according to local wealth. Once again, urban and poor schools are less likely than schools in urban fringe, large towns or rural areas to have spent money on accessibility (GAO, December, 1995). Other studies have estimated that 34 percent of school buildings are not accessible to individuals with physical disabilities (AASA, 1992).

Safety and Health

Structural health and safety problems, such as poor air quality or the existence of asbestos, radon, pesticides, and lead (Conference of Big Five City School Districts, 1996; New York State Education Department, 1994; 1996), continue to plague many school buildings. The GAO estimates that billions of additional dollars need to be spent to rid school buildings of environmental hazards. Many local districts have deferred safety and health improvements due to lack of funds.

In general, federal funding for federal health and safety mandates has not covered costs to districts. For example, federal assistance provided through the Asbestos School Hazard Abatement Act of 1984 did not meet the needs of affected schools. Between 1988 and 1991, the Environmental Protection Agency received over 1,700 applications that totaled $600 million for asbestos abatement assistance, but the Agency could only award $157 million to the 586 school districts with the worst asbestos problems. The EPA believed that state and local governments should bear the costs of all remaining asbestos removal. Unfortunately, this has not happened, and 42 percent of all schools in the GAO study reported that they have yet to comply with federal asbestos requirements (June 1996, p. 6).

Deferred Maintenance

Deferred maintenance is a wicked and costly cycle in which unexpected costs, such as increases in the cost of energy or growing student populations, often require schools to expend *capital* budgets to cover *operating* costs. When this happens, scheduled maintenance is often delayed. According to the GAO Report, *Condition of America's Schools*, district officials nationwide reported that the declining condition of the nation's schools is primarily due to insufficient funds, which leads to deferred maintenance. Deferred maintenance is particularly damaging because it has a domino effect and leads to greater costs down the road. For example, an unrepaired roof may have leaks that eventually cause very expensive wall and floor damage. According to New York school officials quoted in the GAO Report, "While a typical roof repair is $600, a full roof replacement costs $300,000, and painting and plastering 10 rooms on a top floor that have been damaged by water infiltration costs $67,500 plus $4,500 to replace damaged floor tiles. In other words, for every $1 not invested, the system falls another $620 behind" (p. 16).

In summary, NASBE's Infrastructure Study Group found that crumbling schools combined with changes in curricular and technological needs, changing student numbers, rising concerns about infrastructure inequities and the constant need for construction and repair, create an urgent crisis for schools. Costs for facilities repair, renovation and construction continue to escalate, and repairs and updates to existing school buildings continue to lag.

The Study Group also found that the process of rebuilding public school facilities reaches well beyond the issues of renovation and new construction, touching upon the role facilities play to enable educators to meet national, community and individual learning goals. Facilities must be considered an integral component of national reform. Physical space defines and delimits the ability to reform curriculum and instructional methods; defines and delimits the extent to which technology can play a role in teaching and learning; and defines and delimits ways in which teachers can share and interact as professionals.

IV. School Infrastructure as Part of a System of Education

The NASBE School Infrastructure Study Group contends that it is imperative that states begin to provide guidance for, and require from districts, comprehensive strategic planning for education that includes an agenda for school infrastructure coupled with the educational program.

Good school buildings contribute to good education just as bad school buildings interfere with it. Studies demonstrate the relationship between school infrastructure and student achievement, but this relationship is not straightforward, and a myriad of other variables go into making good schools. In other words, school infrastructure contributes to but does not decide the quality of a school. As such, infrastructure is not distinct from other issues of school reform or educational excellence; rather, **school infrastructure decisions are a central component of whole-school reform**.

According to the American Institute of Architects, exemplary schools are typically developed when teachers and the community devise a very strong, long-term educational program that results in a building tailored to meet the needs of the program. This educational program may include not only traditional educational services provided to students during the day, but may also include plans for other agencies to serve a variety of community groups and social service needs both in and out of school hours. Consequently, decisions concerning school infrastructure should be made as one component of a strategic educational plan that also considers:

- Shifts in curriculum, teaching and learning methods;
- Desired learning outcomes;
- Increased and integrated use of technology in schools;
- The degree of flexibility a school may require in order to adapt to planned changes in curricula and enrollment circumstances;
- Reciprocal relationships between schools and their communities;
- New conceptions of inclusiveness and the importance of environment adaptability; and
- Long term funding and population projections.

Since schools are public service agencies, evaluating what schools do and defining what schools ought to do requires community input as well as input from state and local boards and educational professionals. Prioritizing community needs, analyzing the extent to which schools meet those needs, defining ways in which schools could better meet needs, and reviewing the educational program are all activities that require community-wide dialogue. **State and local boards must devise mechanisms to draw community representatives into the whole process of strategic planning and evaluation.**

Attending to multiple issues in a strategic plan that operationalizes education goals and accounts for demographic projections and fiscal constraints is an effective way to ensure that policies *reinforce* each other and the state or district education goals, as well as to ensure that money is spent *efficiently*.

Envisioning infrastructure as one integral component of an education strategic plan also is a useful tool for measuring infrastructure and program improvement. **Once educational policies are measured by the same criteria state-wide, evaluation becomes a powerful and informative tool.** High quality, well-directed evaluation results can produce more directed planning, more productive future policy making and more persuasive advocacy for increased funding.

Minimum Components of a Comprehensive District Building Plan

In planning for infrastructure improvements, school districts must consider at least the following key components:

- *Philosophy Statement.* A district philosophy statement should be the focal point of all teaching and learning in district schools. As such, it should inform the use of each school building, as well as each building's relationship to student instructional programs and the community programs housed within it.

- *Program Goals.* Program goals clearly define the educational goals of each curricular and extracurricular program in the district. These goals include learning and affective needs and desired outcomes. Like a philosophy statement, program goals inform the use, and consequently the layout, of each school building.

- *Program Activities.* Listing and describing program activities can give districts a clear, concise comprehensive plan of educational programs, styles and activities, which determines a building's functional need and environmental design.

- *Population.* Included in every district's educational plan should be the projected enrollment of the school, district, and possibly state. This projection is necessary in order to define spatial requirements and discern shortcomings in meeting present and future needs.

- *Space Summary.* A comprehensive space summary itemizes each existing space within a district and, with information provided from other planning components, prioritizes each space in terms of utility for reaching educational goals. A space summary may list existing and projected square footage needed for each activity defined by the educational components of the district plan.

- *Instructional Technology.* It is important that districts determine what types of instructional technology they are going to implement in the short- or long-term as part of the instructional program. Districts should also determine the technology needs of their staff.

- *Functional Relationships.* All educational and special programs within a district must be considered in terms of their relationship to other programs. This informs the placement of programs and program facilities in the school building.

- *Professional Requirements.* Districts must consider the space needs of teachers and other school staff. This includes consideration of office, conference, planning and storage space needed to meet the short- and long-term needs of staff to implement program activities.

- *Ongoing Evaluation Plan.* Districts must continuously refine an evaluation plan, which puts in place mechanisms for collecting, analyzing, disseminating and utilizing data on the effectiveness of every component on the educational plan. Evaluation is the only way a district knows if it is achieving its plan to meet educational goals. As such, it is extremely important that schools and districts refine and reiterate their methods of evaluation.

The State Role in Infrastructure Strategic Planning

Although school infrastructures must be planned to meet local needs, **states can play a very powerful role in the process of defining educational and facility standards, facilitating comprehensive short- and long-term planning and evaluation, and improving equity across districts**. Capital improvement program applications that are tested and evaluated on a state level and based on state requirements can immeasurably assist the state and districts in their planning. State-level direction of planning and evaluation also ensures that evaluation findings are compat-

ible across the state and binds district-level infrastructure planning to minimum state standards. Also, state involvement in infrastructure planning and evaluation will point out inequities in local district funding and planning capabilities, enabling state boards to more effectively ensure equity. Finally, state education departments that collect and analyze data concerning school infrastructure have valuable data to share with their legislature and the federal government, which can influence state and federal spending priorities and research agendas. Furthermore, it is important for every state to work with districts and communities to define the ways in which states can model good planning and evaluation and facilitate it within their districts.

V. Buildings for Learning

State Boards should create mechanisms to ensure that districts have the tools and information they need to plan and implement building designs that help them achieve their educational strategic plan.

Evidence suggests that keeping school buildings in excellent condition correlates with high student academic performance. For example, one study (in AASA, 1992, p. 6) compared average standardized achievement scores among students in schools with very different building conditions in Washington, DC. After controlling for the effects of other variables such as students' socioeconomic status, this study found that students who attended schools in poor condition scored 5.5 percentage points below students who attended schools in fair condition and 11 percentage points below students who attended schools in excellent condition.

Creating and maintaining excellent schools means creating and maintaining buildings that facilitate the implementation of a comprehensive educational plan. Planning buildings to facilitate curricular implementation goes beyond simply providing safe, comfortable spaces for students and teachers. Rather, it requires districts and states to think hard about the type of teaching and learning they want in their schools and to work with educational and building design experts to create spaces most conducive to their educational plan.

The need for a strategic plan to inform facilities building is particularly acute during this time of educational reform. Expecting teachers to evaluate students in new ways, such as through performance or portfolio assessment, means they may need space to display and store student journals and projects. Schools that operate an ungraded primary school system will need different space layouts than those that do not. Some schools may require space for small group project work or integrated technology in classes. Other schools may need to accommodate a "school within a school." Adding community resources, all-day kindergarten, new science or technology courses or "extended day" programs define new requirements for school space. As schools include new community services, many schools may need the capacity to operate year-round. Others may need to provide a safe environment for night services. All of these programmatic issues must be addressed in the school's comprehensive strategic plan and reflected in building designs.

Regardless of the strategic plan adopted by the community, school and district, it is apparent that space must correspond with its planned use. Planning space for education requires community input, specialist knowledge, ingenuity and creativity. Stand-alone classrooms or schools may no longer be the most effective configuration to deliver the type of services that a district's strategic plan requires.

State departments of education should make available consulting and advising services to districts, undertake building plan reviews, and begin programs to encourage districts to envision buildings as part of their strategic plan and to consider how school buildings can help them achieve educational goals. Although the reorganization of departments of education in many states has eliminated or downsized facilities departments and made service provision more challenging, states such as North Carolina and Washington provide examples of leadership in comprehensive planning.

North Carolina requires local districts to submit long range organizational and facilities plans for review by the state board of education every five years. The School Facilities Finance Act

of 1987 requires that these plans include: efficient utilization of existing facilities; priorities for new construction and renovation; cost estimates; and estimates of available resources. Furthermore, local boards of education are urged to keep abreast of education trends that affect facilities design and submit a plan that is informed by the best in educational practice. The Department of Public Instruction conducts needs and facilities surveys for local districts to help boards develop five-year plans.

The state of Washington requires all districts that receive state financial assistance for construction or retrofitting to prepare and regularly review a "study and survey." This process is usually undertaken by a team including local citizens, the district board of education, school administrators, staff and students, educational consultants, architects and engineers. The study and survey must be comprehensive, including:

- An analysis of the current educational program;
- An analysis of future educational needs and the community characteristics affecting the use of facilities;
- A determination of present and future student populations and characteristics;
- An assessment of the educational adequacy of the existing facilities;
- An accurate calculation in gross square feet of the existing facilities;
- A description and assessment of physical systems (such as plumbing and heating);
- The development of a long-range educational and facilities plan;
- An assessment of financial resources; and
- Specific recommendations adopted by the local board.

"Monuments to Reform"

Across the country, architects are drawing blueprints that literally give dimension and proportion to the notions that school researchers and policy makers can only lobby for.

In response to recommendations that schools wean themselves from standardized testing toward more authentic ways of assessing children, new classrooms have been designed...[for] students who need to work on portfolios. Banks of individual workstations positioned against a curved wall give students privacy and teachers easy access to each child.

An emphasis on student teamwork has prompted school designers to build cubicles that group students and promote cooperative work and projects.

A renewed interest in nature and environmental education has led other school architects to incorporate natural surroundings and settings...

And like officials at Aliso Niguel (High School in San Juan Capistrano, California) who built a gymnasium and theater with the needs of community members in mind, many new schools are going an extra mile to incorporate the ideas of lifelong learning and community connections as they plan new campuses.

In many cities, architects are also on the front lines of the movement to build smaller schools that give students a stronger feeling of belonging. If a reform idea is going to gain ground, incorporating it into a construction project is a good start.

From Harp, L. 1996. "Monuments to Reform." *Education Week*, April 3.

State Board Action Points

- ✓ State Boards should evaluate state limitations on local capital construction funds and ensure that such limitations do not differentially affect districts with differing prosperity levels.
- ✓ State Boards should require districts to create long-term strategic plans that include capital projects and should provide the technical assistance necessary to facilitate such planning within each district.
- ✓ State Boards should ensure that district building plans correspond with other aspects of the district and state strategic plan which is informed by a comprehensive state-wide evaluation program and is part of the district accreditation process.
- ✓ State Boards should ensure that the state provides adequate consulting and advising services to help districts produce a strategic plan.
- ✓ State Boards should work to develop permissive interagency agreements at the state level to allow and facilitate such cooperation at the local level.

VI. Building an Effective Technological Infrastructure

State Boards should create mechanisms to help districts provide adequate technology and technological support for students and compel educators and local boards to integrate technology into their educational plan.

Planning for School Technology

Few people doubt the importance of technology in 21st Century schools. New ideas concerning technology in schools suggest that notions of "computer labs" as places where students *go to do computer* are no longer applicable. Today, computers, networks and other technology media are expected to be an integrated component of a student's educational experience, as one of many tools that deliver the whole curriculum. Consequently, states are challenged to support a comprehensive technology infrastructure and encourage school construction and renovation that will support emergent technologies such as telecommunications and other media technology.

Educational professionals realize that they need to provide students with meaningful experiences with technology. Interactive technologies and telecommunications technology are being utilized in classrooms in many different ways, including distance education programs that are changing the way small, rural, or economically depressed schools provide services to students and programs to expand the scope of educational experiences of students across the country. Further, more than half of all new jobs for which schools prepare students require some form of technological and information literacy (The Children's Partnership, 1994, p. 4).

Because of the link between technology, learning and workplace skills, the GAO (April 1995) suggests that every classroom of the 21st Century have:

- Sufficient number of high-quality computers;
- CD-ROMs;
- Printers;
- Computer networks;
- Modems;
- Telephone lines for modems in instructional areas;
- Television sets;
- Laser diskplayers/video cassette recorders;
- Cable television;
- Fiber optic cable;
- Conduits/raceways for computer and computer network cables;
- Adequate electric wiring; and
- Adequate power for computers and other technology.

Planning for such a technology infrastructure in schools requires a comprehensive strategic plan to guide the application of technology to a school or district's educational program. Like other aspects of facilities planning, a good technology plan does not exist outside of a strategic plan. Rather, it is an integral part of it. As a part of the strategic plan, technology must complement the educational goals of the school, district and state.

States in general have been slow to provide leadership to districts in building a technological infrastructure. About two-thirds of states provide no state level coordination of technology, although there are very compelling reasons to do so. State involvement in school technology can:

- Reduce the cost of equipment;
- Reduce the cost of services;
- Help achieve equity across the state;
- Provide high-quality professional development networks of teachers across the state; and
- Ensure that students across the state are developing work skills by using technological facilities of similar quality.

Some states are beginning to provide leadership, coordination and funding for a comprehensive technology network for schools. For example, Iowa is a leader in educational technology. Through a state-of-the-art fiber optics network called the Iowa Communication Network (ICN), approximately 130 video classrooms are available across the state, and another 132 sites are being developed during the 1996-97 school year. This network also connects fifteen regional centers, three regent universities, and Iowa Public Television. Besides providing distance learning courses, this network provides workshops and seminars for educators and facilitates town meetings.

Other states have also provided leadership and coordination in developing technology infrastructure in schools:

North Carolina has saved its schools between 20 and 50 percent on the costs of several technology items by purchasing items in large quantities as part of a state contract. Estimates are that if every state coordinated purchases at the state level, the cost of connecting every school to the Information Infrastructure would be reduced by more than $2 billion (Rothstein, 1995).

Some states have passed legislation that permits the state Public Utilities Commission to set preferential or fixed intra-state rates for educational institutions. This saves considerable money for schools linking to the Technology Infrastructure. If schools were given free Internet connections, the cost for school internet connections would be reduced between $150 million and $630 million (Rothstein, 1995).

In January, 1996, California began implementing its Technology Assistance Project, which allocates funds to the state's eleven county offices of education to advance the use of technology in California schools. The 1995-96 budget for this project included a $279 million block grant for instructional materials, deferred maintenance and other non-recurring costs and a $10 million education technology initiative to refurbish or upgrade used or donated computers. In 1994, PacificTelesis was directed to distribute $35 million in rate overcharges, which may be made available for technology in K-12 schools.

All school districts in Texas are eligible to receive a technology allotment for purchasing electronic textbooks and technological equipment or providing training for educational personnel in technology. Texas technology initiatives are funded from a Telecommunications Infrastructure Fund of $150 million each year for ten years. Universities in Texas provide technical support to a state-wide network of educational institutions on-line. If a nationwide program of technical support were instituted such as the program in Texas, potential savings to schools would be between $800 million and $1.8 billion (Rothstein, 1995).

In 1994, the General Assembly of Ohio allocated $95 million for Ohio SchoolNet. Of these funds, $50 million were allocated to wire all classrooms in the state and $45 million to fund the purchase of computers and peripherals for all classrooms in the one-fourth of districts with the lowest adjusted property valuation per pupil. In 1995, SchoolNet Plus received $275 million, with another $125 million promised in future legislation, to fund one interactive computer for each five children enrolled in grades K to 4. These programs used the State Plan for Technology developed by the Ohio State Board of Education as a philosophical foundation, and they aim to empower teachers and students by bringing the resources of the outside world into schools and by encouraging new ways of teaching and learning.

States can also seek out and publicize innovative uses of technology in local districts. Local examples of effective integration of technology in schools abound. For example, the new Stuyvesant High School in New York City has over 400 up-to-date computers, linked to 15 networks, all with access to the Internet. It has satellite links with locations across the globe, participates in interactive classes with researchers in the Amazon rain forest and allows students to take "virtual" field trips to almost anywhere on earth. Other schools are also making progress. For example, in March 1994, there were four elementary schools with World Wide Web home pages, and by May 1995 there were 500, with an estimated 100 schools coming onto the Web each month.

Examining local examples of technology integration can provide models of useful practices for states to support or emulate. States also can help *all* schools and districts plan for comprehensive use of technology by publicizing the successes of other schools and by coordinating high-quality technical assistance based upon best practices found across the state. Minimally, this technical assistance should encourage schools to investigate ways to merge technology with curriculum. This requires community-wide strategic planning in curricular content and delivery, including balancing face-to-face instruction and technology, cost and quality issues, and anticipated and current needs.

State Board Action Points

- ✓ State Boards should require districts to include technology as part of a long-term strategic plan based on educational goals.
- ✓ State Boards should investigate ways to reduce the cost of technology through state-wide and interagency contracts.
- ✓ State Boards should ensure that a state-level planning and evaluation mechanism informs state and local strategic planning for technology.
- ✓ State Boards should consider creating state minimum standards for a "technologically equipped" school.
- ✓ State Boards should facilitate and support professional development and teacher networks that will enable the teaching force to integrate technology into the curriculum.
- ✓ State Boards should review teacher certification standards to ensure that new teachers are learning how to incorporate technology into their teaching practices.

VII. Building Infrastructure for Professional Support

State Boards should ensure that teachers and support staff have access to state-of-the-art professional space, technology and technical assistance to assist them in attaining state and district education goals and in implementing reform.

Planning for Professional Support

Research on school facilities and learning suggests there is an important link between student learning and the quality of professional facilities provided for teachers (Council of Educational Facilities Planners, International, Guide for School Facility Appraisal, p. 42). Providing teachers with quiet space, professional furnishings, adequate storage, telephones and computers improves education in many ways: 1) it encourages teachers to take advantage of technology; 2) it gives them professional tools to comprehensively plan and evaluate their work; (CEFPI, Guide for School Facility Appraisal, p. 42); and 3) it provides an opportunity for improved and more frequent communication with parents and families.

Professional Space

Those involved in school design understand that planning for the professional needs of teachers is an important component of school layout and design. Teachers teach better and feel better equipped to do their job when they have space in which to plan and evaluate their work. The late Ernest Boyer, president of the Carnegie Foundation for the Advancement of Teaching, believed that professional working conditions also are essential in order to attract and retain outstanding teaching professionals (quoted in CEFPI/ASCD, p. 20).

Traditional school layouts, especially in elementary schools, often have no dedicated space for teachers, no place except the lunchroom for teachers to gather, no private space for teachers to hold conferences with students or parents, and little or no storage space for teachers. Historically, there has been little acknowledgment that classrooms are *not* offices and do *not* provide space for teachers to plan and evaluate their work, as other professionals are expected to do.

> ***(Teachers) must be regarded as professionals, treated as professionals, and consider themselves to be professionals. Unless we create an environment in schools...that sustains such an attitude, we cannot expect improvements to occur.***
>
> Ernest Boyer, President of the Carnegie Foundation for the Advancement of Teaching, quoted in CEFPI/ASCD "Designing Places for Learning," p. 20.

However, a new trend in school design is to give teachers office space (NSBA, 1996). Recent school designs have included teacher conference space, adequate storage space, and small group workrooms for teachers. The American Society for Curriculum Development (ASCD) recommends that all of these design options be combined so that teacher offices have adequate storage and be clustered around a common space for conferencing and teacher collaboration.

Professional work areas for teachers and other school staff are also common in recently built library/media centers. These work areas are places for staff to connect to a district-wide student managment system that may include attendance, grades, records and electronic mail capabilities.

Technology

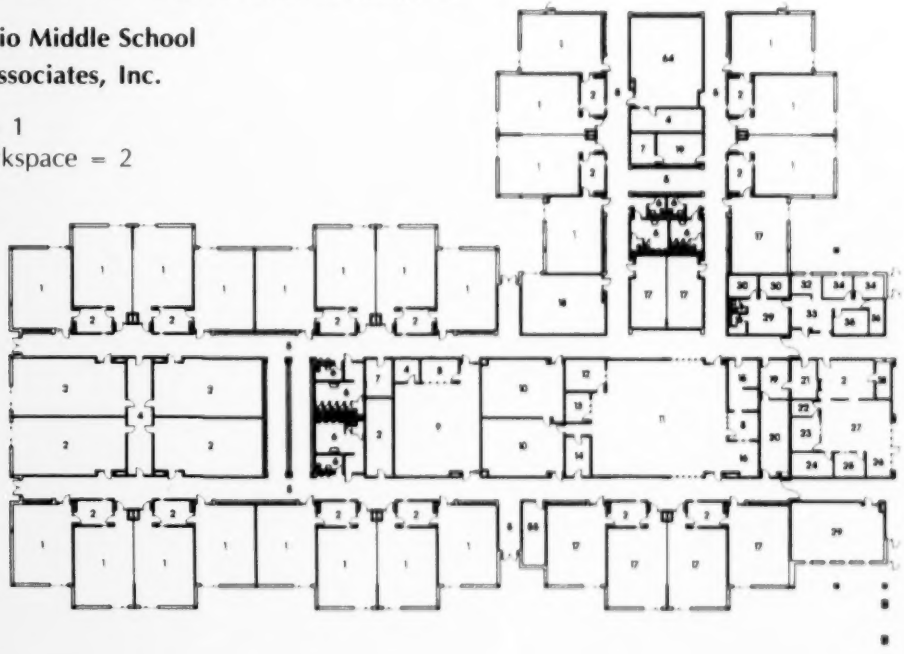
Teachers and other staff need to utilize state-of-the-art technology, not only as a curricular resource, but also to model the use of technology to students, access on-line professional development information, share ideas with other teachers across the school, state, or country, and keep records. Networking teachers, giving them ready access to mentors, and encouraging them to exchange classroom practice ideas can lead to better teaching and learning. Already, there are lesson plans, discipline tips, field trip descriptions and other professional aids available on-line for teachers and school staff. A variety of educational magazines and newspapers can be accessed through the Internet, and "chat rooms" have been established by several major Internet providers. Some corporations are developing on-line professional support networks to address a variety of teachers' needs, such as how to solve an Internet problem, how best to find information about authors and works of literature, and how to integrate technology into lesson plans. Other corporations have developed programs of intensive technology training for teachers. Some suggest that computers may also be used by teachers and administrators for on-line conferences with parents who are unable to leave work during the day, or to meet with staff across the district to share data and ideas without leaving offices or classrooms unattended.

However, some of the same factors that prohibit student access to technology also apply to staff. Schools without digital telephones or with a limited number of telephone lines may not be able to link teachers and other staff to electronic resources. Schools without adequate numbers of computers may elect to restrict computers to student use. Additionally, teachers and other staff may require technical assistance and professional development in order to be able to effectively apply technology in their work.

Partial Floor Plan Showing Teacher Workspace

Fostoria, Ohio Middle School
Freytag & Associates, Inc.

Classroom = 1
Teacher Workspace = 2



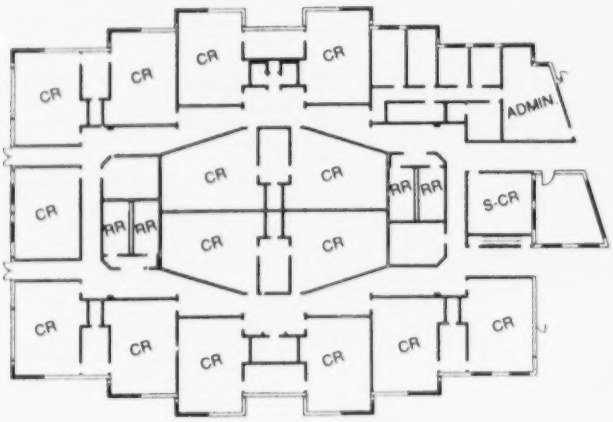
Partial Floor Plan Showing Teacher Workspaces

Lebanon, Indiana Intermediate School

Steed Hammond Paul, Inc.

Classroom = CR

Teacher Workspaces are in small areas between classrooms



State Boards should ensure that teachers and support staff have access to state-of-the-art professional space, technology and technical assistance to assist them in attaining state and district education goals and implementing reform. This can be accomplished in a variety of ways, including:

- Disseminating to local school districts examples of schools in the state that are providing adequate professional space for teachers and developing technical assistance to districts that want to build state-of-the-art space in schools;
- Including in state building guidelines the need for providing teachers with professional space;
- Encouraging the development of state-wide electronic data banks of lesson plans that are tied to state education goals;
- Developing recognition or awards programs that recognize teachers who utilize technology in promising ways in the classroom to enhance the educational process;
- Providing state-wide technical assistance for teachers and staff, possibly through agreements with state universities;
- Developing state-wide on-line professional development materials;
- Setting aside special funds for staff technology, separate from student computers, modems, etc.

State Board Action Points

✓ State Boards should require districts to incorporate in their strategic plan for facilities professional space and technology provisions for teachers and other personnel.

✓ State Boards should discuss what types of information may be useful to provide on-line for school staff and develop policies concerning the development of that information.

✓ State Boards should develop standards for teacher and staff professional space in schools.

✓ State Boards should find effective ways to provide technical assistance in computer technology to staff across the state.

VIII. Building a System for Infrastructure Funding

State policy makers and local districts must work together to create funding mechanisms to ensure that all students have access to genuinely good schools. These mechanisms must work as part of the strategic plan, to ensure that schools are built everywhere that have the space and tools necessary to achieve educational goals.

The way states and districts finance school capital improvement programs is critical to their success in meeting educational goals and objectives. In addition to the more obvious need to repair, renovate, construct, and maintain school facilities, states and districts also must finance school facility programs to assure equity.

Although every state and district contends with limited funds, creating innovative funding formulas and seeking out creative funding mechanisms can make a real difference in the distribution of good educational facilities across the state. Relatedly, good funding programs require regular, comprehensive planning and evaluation. Not only does data from planning and evaluation inform program improvement, but thorough research and detailed documentation can make the case for more legislative and general public support of funding for construction needs.

State and Local Involvement in Infrastructure Funding.

A 1989 Education Writer's Association report found that thirteen of the 38 states they surveyed had one employee or fewer in the state department of education that was responsible for facilities. They also found that only three surveyed states carried out periodic assessments of school facilities. The good news is that the GAO in 1995 found that nearly all states play some role in construction, renovation or maintenance of school facilities. The bad news is that there were still only 13 states that had established comprehensive facilities programs.

Most public school systems rely heavily on financial support from their state. On average school districts receive 50 percent of their revenues from their states, although the percent of state support ranges from 7 percent in New Hampshire to 91 percent in Hawaii (AASA, 1992). Still, this funding is commonly earmarked for operational expenses and projects other than infrastructure. Typically, school construction, repair and retrofitting have been funded locally. In 1994, states provided grants and loans for new school construction and retrofitting totaling approximately $3.5 billion. However, **this amount does not come close to the $112 billion that the GAO estimated was needed to repair existing facilities alone.**

Federal funds historically have not been a stable or significant source of capital funding for states and local districts. Beyond limited funding to promote accessibility and for hazardous material removal, capital expenditure has not been within the federal education funding domain. This began to change in 1994, when Congress passed the Education Infrastructure Act and appropriated $100 million for schoolrepair, renovation and construction. But budget-balancing efforts in 1995 eliminated these funds. More recently, President Clinton announced a $5 billion interest repayment scheme to drive local school infrastructure investment. This initiative has the potential of spurring as much as $20 billion in infrastructure projects but has yet to pass Congress.

Many districts have difficulty raising money for needed repairs because of anti-tax sentiment that results in failed bond issues and property tax limitations. The GAO (February, 1995) reported that approximately one in three districts reported that they had two bond issues fail in the last 10

Amount of State Aid Provided for School Facilities Construction in State Fiscal Year 1994 for States with Ongoing Funding Programs

State	State Funding for Grants and Loans (in dollars)	State Funding per Pupil (in dollars)
Alaska	273,956,043	2,254
Hawaii	133,088,000	740
Florida	579,182,541	290
Connecticut	137,541,140	281
Delaware	29,373,300	275
Maine	43,500,000	203
North Carolina	219,506,574	195
Massachusetts	170,000,000	193
New York	451,000,000	167
Vermont	16,400,000	163
Indiana	149,863,628	155
Minnesota	122,900,000	153
Washington	137,600,000	150
Georgia	151,170,000	123
Rhode Island	17,008,435	117
Maryland	87,000,000	113
Pennsylvania	184,000,000	105
Colorado	65,656,512	105
Virginia	108,800,000	104
Kentucky	66,380,260	104
New Mexico	28,763,442	93
New Hampshire	15,327,295	84
Wyoming	8,000,000	80
Mississippi	36,000,000	72
New Jersey	69,945,000	61
North Dakota	5,660,000	48
South Carolina	25,807,048	41
Ohio	68,600,000	38
Idaho	7,015,342	30
Utah	9,612,055	21
Kansas	7,000,000	16
Alabama	9,790,992	14
Michigan	20,227,052	13
Arkansas	4,764,506	11
California	52,000,000	10
Montana	1,000,000	6
West Virginia (1)	0	0
Tennessee	not provided	not provided
Arizona (2)	unknown	unknown
Wisconsin (2)	unknown	unknown

NOTE: Ten states had no regular, ongoing program to assist districts with capital construction costs. IL, IA, LA, MO, NE, NV, OK, OR, SD and TX, are not included in this table.

(1) WV provides financial assistance for school construction but provided none in fiscal year 1994.

(2) Reported by state officials as "unknown."

SOURCE: U.S. GAO, 1995, School Facilities: States' Financial and Technical Support Varies, p. 7.

years. Even when passed, bond proceeds are often far less than is needed for repairs. For example, Pomona, California needed $200 million for repairs to local schools, but passed a bond issue of only $62.5 million because it was apparent to officials that a bond issue for the amount needed would not pass.

Many local districts have leveraged their own funds and found ingenious new avenues to fund facilities improvements. Some new ways to fund facilities improvements show promise, and could be encouraged through state policy. Others, if implemented freely, may increase inequities rather than equalize school facilities from district to district. In fact, the National Conference of State Legislatures reports that entrepreneurial activities undertaken by some schools can not only cause school funding inequities but can also damage public support for public schools (AS&U, Feb. 1996, p. 14). State boards should evaluate these activities and create formulas and other mechanisms to ensure that new monies do not increase inequities among schools.

Alternative mechanisms for funding capital expenditures that are being utilized by local districts include:

- **Lease purchase agreements** — which mostly fund new school construction. Under lease purchase agreements, another party builds a school and leases it to a district. After 20 or 30 years, the school building reverts to the district. In Orange County, Florida, several schools have been funded in this way, and are leased to the Orange County School District by the Florida School Boards Association (FSBA). Every year, the district pays the FSBA $22 million in lease payments. This money is collected through a capital improvement tax levied on county property.

- **Corporate underwriting of schools in turn for student slots** — which is often

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controversial. Some local districts have accepted capital construction funds from large corporations in the community. In return, some corporations ask for a guaranteed number of corporate employees receiving the benefits of the funded improvements. This often is granted in the form of student quotas guaranteeing that children of corporation employees may attend the newly constructed school.

- **Mitigation fees from developers** — In some states, local districts are permitted to charge fees to developers who build real estate that contributes to increased numbers of students in the local schools. The idea is that if a developer profits from building in an area, the developer should help pay for local facilities needed to provide for the population their development brings to the community. Funds from this source are typically used to build new schools or add to existing schools.

- **Partnerships with other public and private entities** — which are often formed with agencies such as hospitals, community centers, day care centers, community libraries and other social service providers. Partnering with different entities may leverage funds for new school or joint-usefacilities.

- **Performance contracts** — which are usually used to repair existing buildings. Performance contracts encourage schools to contract repairs by allowing school districts to use money from the private sector in order to finance facilities improvements that will achieve guaranteed savings, such as installing new heating units or new windows. The performance contractor collects the savings plus interest annually for a specified number of years.

- **Dedicated utility taxes** — which are collected from utility companies that may benefit from the use, by schools, of their utility. For example, in Texas, telecommunications infrastructure building in public schools is funded partly through a telecommunications utility tax. Each year, the state produces an annual assessment on all telecommunications utilities doing business in the state. Each telecommunications utility pays an annual tax in accordance with the business they have done in Texas for that year.

- **Professional licensing fees** — which apply funds from license fees in areas related to school facilities to the construction and maintenance of schools. For example, in Indiana, architects' licensure fees are applied to school construction projects.

- **Endowments** — which come from private individuals and foundations have been used to fund a variety of local school improvements. Based upon the college and university model of depending on an alumni network for endowments to fund capital construction, public elementary and secondary schools are increasingly doing the same.

- **Fundraising and capital campaigns** — which have often been used to fund smaller school projects such as class trips and football or marching band uniforms, can be applied to school facilities. For example, individual schools in Colorado have their own personal foundations, as do several schools in Virginia, which raise funds for the maintenance and improvement of the school.

Besides monitoring district capital construction funding mechanisms, state boards of education can play an important role to ensure that states plan for adequate school infrastructure through adequate enrollment and need projections and accurate long-term cost projections. Most importantly, it is imperative that state boards develop long-term proactive strategies for working with the state legislature. These strategies must be strong enough to provide consistent support within the legislature for school facilities funding. All boards should have mechanisms in place to facilitate frequent meetings between board and legislative representatives to collect and report data, resolve issues, plan strategically and come to agreements concerning the level of state involvement in school capital construction.

Characteristics of Equitable State Capital Outlay Programs

- The quality of school facilities available to the pupils of a school district should not be determined by the fiscal capacity of the district. Either the state must fully finance the facilities needed or it must provide equalization grants which substantially equalize the financial resources of the school districts that are available for financing needed facilities. This is one of the principal criteria used for evaluating the equity of a state's plan for financial current expenses.

- An equitable measure of need for school facilities should be utilized. The measure of need for school facilities should be based primarily upon the educational program needed. The measure of need should give consideration to at least the following factors:
  - The school buildings of all school districts depreciate at a rate of about 2% per year. Therefore, all districts have a depreciation need of at least 2% of present replacement cost. The depreciation of equipment is still greater. Therefore, the depreciation of buildings and equipment combined is probably about 2½% per year. Unit depreciation costs can readily be computed on a pupil- or teacher-unit basis.
  - The measure of need should include pupil growth, projected pupil growth, and capital-outlay needs resulting from a shift in the residence of the pupil population within a district.
  - Different types of educational programs cost varying amounts per unit. Furthermore, school plants may cost more in some school districts than the state average, due to differences in site costs and other factors. These cost variations should be included in the measure of need.
  - Some districts may have issued bonds and produced the needed facilities without waiting for the state to develop an equitable plan of school financing. The debt service on such bonds should be included in the measure of need for such districts.

- The finance plan should provide for financing school facilities by borrowing and by current revenue. [Local] boards of education should have ample authority to issue bonds for school facilities and utilize annual state grants to pay all or part of the debt service on such bonds. If a district does not have the bonding capacity needed to finance the facilities needed, a state authority should be given power to issue state bonds on behalf of the district and should utilize all or part of the annual state capital-outlay allotment to the district to pay the debt service on the bonds. School districts should also have the authority to use current annual state allotments for capital outlay and current local revenue, in order to reduce the interest costs of excessive borrowing.

- The school plant program should be carefully planned and projected over a period of years. The state departments of education should provide technical assistance to their local boards of education for this planning process.

- The state should not exercise unnecessary controls over the plant program of a school district. It is recognized that the state should enforce minimum standards with respect to health and safety, but the state should not establish state plans for school buildings or require a uniform number of square feet per elementary or high school pupil. The need for the school plan originates in the educational program, and local boards of education should be given a large measure of authority in determining the educational program needed in the district....The school plant should facilitate the educational program needed, not control it.

- The plan for financing the school plant should be an annual, continuing plan, as contrasted with ad hoc, emergency plans.

From Alexander, K. and Salmon, R.G. *Public School Finance* (1995), pp. 346-347.

Providing schools in excellent condition that reflect state and local educational goals is an enormous challenge for policymakers — especially because the issues of under-funding overshadow many conversations about the potential for buildings to contribute to learning. ly is imperative that state policymakers and local district officials work together to create funding mechanisms to ensure that all students have access to genuinely good schools. These mechanisms must work as part of the strategic plan, to ensure that schools are built everywhere that have the space and tools necessary to achieve educational goals.

State Board Action Points

- ✓ State Boards should include capital construction funding mechanisms and anticipated funding levels in their strategic plan.
- ✓ State Boards should create partnerships with the legislature to ensure steady support forschool infrastructure.
- ✓ State Boards should collect data to inform state legislatures and the federal government of infrastructure conditions and funding needs.
- ✓ State Boards should consider equitable funding mechanisms to ensure that all districts are equally capable of providing adequate facilities for staff.
- ✓ State Boards should assess the effects of new fundraising practices on infrastructure equity.
- ✓ State Boards should regularly evaluate the outcomes from their state capital construction funding formulas.
- ✓ State Boards should investigate alternative methods of funding capital construction.

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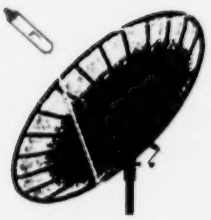

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